

## CLAIMS

1. A manufactured mineral water with the following elemental composition present as biologically acceptable soluble salts:
  - 5 group A consisting of calcium at a final concentration of between 25 and 82 mg/L and magnesium at a final concentration of between 6 and 18 mg/L,
  - group B consisting of phosphorus at a final concentration of between 15 and 80mg/L, potassium at a final concentration of between 50 and 180 mg/L, silicon at a final concentration of between 0.45 to 1.5 mg/L, sodium at a final concentration of between 3 and
  - 10 30 mg/L, chlorine at a final concentration of between 3 and 28 mg/L,
  - group C consisting of boron at a final concentration of between 0 and 60 µg/L, chromium at a final concentration of between 0 and 0.5 µg/L, cobalt at a final concentration of between 0 and 0.5 µg/L, copper at a final concentration of between 0 and 12 µg/L, iodine at a final concentration of between 0 and 6 µg/L, lithium at a final concentration of between
  - 15 0 and 1.5 µg/L, manganese at a final concentration of between 0 and 1.5 µg/L, molybdenum at a final concentration of between 0 and 1.5 µg/L, nickel at a final concentration of between 0 and 0.5 µg/L, selenium at a final concentration of between 0 and 100 µg/L, tin at a final concentration of between 0 and 1.5 µg/L, vanadium at a final concentration of between 0 and 0.1 µg/L and zinc at a final concentration of between 0 and 100 µg/L, and
  - 20 group D consisting of iron at a final concentration of between 0 and 20 µg/L.
2. The manufactured mineral water as in claim 1 wherein the pH of the final beverage is adjusted to a final value of between 6.6 to 8.0 for a still water or a final value of between 2.5 to 8.0 for an aerated or carbonated water.
- 25 3. The manufactured mineral water as in claim 2 wherein the range of concentrations of the group A elements are as follows, calcium at a final concentration of between 44 and 74 mg/L and magnesium at a final concentration of between 10 and 16 mg/L.

4. The manufactured mineral water as in claim 2 wherein the final concentration of calcium is about 59 mg/L and the final concentration of magnesium is about 13 mg/L.
5. The manufactured mineral water as in claim 2 wherein the concentration of the group B elements are as follows; phosphorus at a final concentration of between 20 and 65mg/L, potassium at a final concentration of between 80 and 150 mg/L, silicon at a final concentration of between 0.55 to 1.0 mg/L, sodium at a final concentration of between 5 and 15 mg/L, chlorine at a final concentration of between 5 and 14 mg/L.
- 10 6. The manufactured mineral water as in claim 2 wherein the concentration of the group B elements is as follows; phosphorus at a final concentration of about 30 mg/L, potassium at a final concentration of about 120 mg/L, silicon at a final concentration of about 0.75 mg/L, sodium at a final concentration of about 8 mg/L, and chlorine at a final concentration of about 9 mg/L.
- 15 7. The manufactured mineral water as in claim 2 wherein the concentration of the group C elements are as follows; boron at a final concentration of between 10 and 40 µg/L, chromium at a final concentration of between 0.05 and 0.2 µg/L, cobalt at a final concentration of between 0.05 and 0.2 µg/L, copper at a final concentration of between 2 and 9 µg/L, iodine at a final concentration of between 0.4 and 2.5 µg/L, lithium at a final concentration of between 0.1 and 1.0 µg/L, manganese at a final concentration of between 0.1 and 1.0 µg/L, molybdenum at a final concentration of between 0.1 and 1.0 µg/L, nickel at a final concentration of between 0.05 and 0.2 µg/L, selenium at a final concentration of between 10 and 70 µg/L, tin at a final concentration of between 0.1 and 1.0 µg/L, vanadium at a final concentration of between 0.01 and 0.07 µg/L and zinc at a final concentration of between 10 and 70 µg/L.
- 25 8. The manufactured mineral water as in claim 2 where the concentration of each group C element is as follows; boron at a final concentration of about 19 µg/L, chromium at a final concentration of about 0.1 µg/L, cobalt at a final concentration of about 0.1 µg/L, copper at a
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final concentration of about 4.3 µg/L, iodine at a final concentration of about 1.3 µg/L, lithium at a final concentration of about 0.4 µg/L, manganese at a final concentration of about 0.4 µg/L, molybdenum at a final concentration of about 0.5 µg/L, nickel at a final concentration of about 0.1 µg/L, selenium at a final concentration of about 34 µg/L, tin at a  
 5 final concentration of about 0.4 µg/L, vanadium at a final concentration of about 0.03 µg/L and zinc at a final concentration of about 26 µg/L.

9. The manufactured mineral water as in claim 2 wherein the concentration of the group D element is as follows; iron is at a final concentration of between 2 and 12 µg/L.

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10. The manufactured mineral water as in claim 2 wherein iron is present at a final concentration of about 5 µg/L.

11. The manufactured mineral water as in claim 2 wherein calcium is at a final  
 15 concentration of about 59 mg/L, magnesium is at a final concentration of about 13 mg/L, phosphorus is at a final concentration of about 30 mg/L, potassium is at a final concentration of about 120 mg/L, silicon is at a final concentration of about 0.75 mg/L, sodium is at a final concentration of about 8 mg/L, chlorine is at a final concentration of about 9 mg/L, boron is at a final concentration of about 19 µg/L, chromium is at a final concentration of about 0.1  
 20 µg/L, cobalt is at a final concentration of about 0.1 µg/L, copper is at a final concentration of about 4.3 µg/L, iodine is at a final concentration of about 1.3 µg/L, lithium is at a final concentration of about 0.4 µg/L, manganese is at a final concentration of about 0.4 µg/L, molybdenum is at a final concentration of about 0.5 µg/L, nickel is at a final concentration of about 0.1 µg/L, selenium is at a final concentration of about 34 µg/L, tin is at a final  
 25 concentration of about 0.4 µg/L, vanadium is at a final concentration of about 0.03 µg/L; zinc is at a final concentration of about 26 µg/L; and iron is at a final concentration of about 5 µg/L.

12. The manufactured mineral water as in claim 2 wherein calcium is at a final concentration of about 59 mg/L, magnesium is at a final concentration of about 13 mg/L, phosphorus is at a final concentration of about 30 mg/L, potassium is at a final concentration of about 120 mg/L, silicon is at a final concentration of about 0.75 mg/L, sodium is at a final concentration of about 8 mg/L and chlorine is at a final concentration of about 9 mg/L and wherein the some or all of the elements of group C and D are absent.

13. The manufactured mineral water as in claim 12 wherein boron, copper, iodine, selenium, zinc and iron are present.

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14. The manufactured mineral water as in claim 2 wherein calcium is provided in the form of calcium hydroxide  $\text{Ca}(\text{OH})_2$ .

15. The manufactured mineral water as in claim 2 wherein calcium is provided in the form of one or more of but not wholly of one of the group consisting of  $\text{CaCl}_2$  (calcium chloride)  $\text{CaI}_2$  (calcium iodine)  $\text{CaSO}_4$  (calcium sulphate)  $\text{Ca}(\text{H}_2\text{PO}_4)_2$  (monobasic calcium phosphate) and calcium hydroxide  $\text{Ca}(\text{OH})_2$ .

16. The manufactured mineral water as in claim 2 wherein magnesium is provided in the form of  $\text{Mg}(\text{OH})_2$  (magnesium hydroxide).

17. The manufactured mineral water as in claim 2 wherein magnesium is provided in the form of one or more of but not wholly of one of the group consisting of  $\text{MgCl}_2$  (magnesium chloride),  $\text{Mg}(\text{H}_2\text{PO}_4)_2$  (monobasic magnesium phosphate),  $\text{MgSeO}_4$  (magnesium selenate),  $\text{MgSO}_4$  (magnesium sulphate) and  $\text{Mg}(\text{OH})_2$  (magnesium hydroxide).

18. The manufactured mineral water as in claim 2 wherein phosphorous is provided in the form of  $\text{KH}_2\text{PO}_4$  (monobasic potassium phosphate).

19. The manufactured mineral water as in claim 2 wherein phosphorous is provided in the form of one or more of but not wholly of one of the group consisting of  $\text{KH}_2\text{PO}_4$  (monobasic potassium phosphate),  $\text{NaH}_2\text{PO}_4$  (monobasic sodium phosphate) and  $\text{K}_2\text{HPO}_4$  (dibasic potassium phosphate).

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20. The manufactured mineral water as in claim 2 wherein potassium is provided in a form selected from the group consisting of  $\text{KH}_2\text{PO}_4$  (monobasic potassium phosphate) and  $\text{KHCO}_3$  (potassium bicarbonate).

10 21. The manufactured mineral water as in claim 2 wherein potassium is provided in the form of one or more of but not wholly of one of the group consisting of  $\text{KH}_2\text{PO}_4$  (monobasic potassium phosphate),  $\text{KHCO}_3$  (potassium bicarbonate),  $\text{KCl}$  (potassium chloride),  $\text{KI}$  (potassium iodide),  $\text{K}_2\text{MoO}_4 \cdot 5\text{H}_2\text{O}$  (potassium molybdate),  $\text{K}_2\text{HPO}_4$  (dibasic potassium phosphate),  $\text{K}_2\text{SeO}_4$  (potassium selenate) and  $\text{K}_2\text{SO}_4$  (potassium sulphate).

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22. The manufactured mineral water as in claim 2 wherein silicon is provided in the form of  $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$  (sodium metasilicate).

20 23. The manufactured mineral water as in claim 2 wherein sodium is provided wholly or partially in a form selected from the group consisting of  $\text{NaHCO}_3$  (sodium bicarbonate)  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$  (sodium tetraborate),  $\text{NaCl}$  (sodium chloride),  $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$  (sodium molybdate),  $\text{Na}_2\text{SeO}_4 \cdot 10\text{H}_2\text{O}$  (sodium selenate),  $\text{Na}_2\text{SeO}_3$  (sodium selenite)  $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$  (sodium silicate) and  $\text{Na}_2\text{SO}_4$  and  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$  (sodium sulphate).

25 24. The manufactured mineral water as in claim 2 wherein sodium is provided in the form of one or more of but not wholly of one of the group consisting of  $\text{NaHCO}_3$  (sodium bicarbonate)  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$  (sodium tetraborate),  $\text{NaCl}$  (sodium chloride),  $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$  (sodium molybdate),  $\text{Na}_2\text{SeO}_4 \cdot 10\text{H}_2\text{O}$  (sodium selenate),  $\text{Na}_2\text{SeO}_3$  (sodium selenite)  $\text{Na}_2\text{SiO}_3 \cdot 5\text{H}_2\text{O}$  (sodium silicate) and  $\text{Na}_2\text{SO}_4$  and  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$  (sodium sulphate),

$\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$  or  $2\text{H}_2\text{O}$  (monobasic sodium phosphate) and  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$  (dibasic sodium phosphate).

25. The manufactured mineral water as in claim 2 wherein chlorine is provided wholly or  
5 partially in a form selected from the group consisting of  $\text{NaCl}$  (sodium chloride),  $\text{KCl}$  (potassium chloride),  $\text{CaCl}_2$  (calcium chloride) and  $\text{MgCl}_2$  (magnesium chloride).
26. The manufactured mineral water as in claim 2 wherein boron is provided wholly or  
10 partially in a form selected from one of the group consisting of  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$  (sodium tetraborate) but might be provided as  $\text{K}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$  (potassium tetraborate).
27. The manufactured mineral water as in claim 2 wherein chromium is provided in the  
form  $\text{K}[\text{Cr}(\text{SO}_4\text{H}_4)_2(\text{H}_2\text{O})_2] \cdot 6\text{H}_2\text{O}$  (chromium potassium sulphate).
- 15 28. The manufactured mineral water as in claim 2 wherein cobalt is provided wholly or  
partially in a form selected from one or more of the group consisting of  $\text{CoK}_2(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$  (cobaltous potassium sulphate) and  $\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$  (cobalt sulphate).
29. The manufactured mineral water as in claim 2 wherein copper is provided wholly or  
20 partially in a form selected from one or more of the group consisting of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  (cupric sulphate) and  $\text{CuSeO}_4 \cdot 5\text{H}_2\text{O}$  (cupric selenate).
30. The manufactured mineral water as in claim 2 wherein iodine is provided as (KI)  
potassium iodide.
- 25 31. The manufactured mineral water as in claim 2 wherein lithium is provided as  
 $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$  (lithium sulphate) and this is preferably the sole source of lithium.

32. The manufactured mineral water as in claim 2 wherein lithium is provided wholly or partially in a form selected from one or more of the group consisting of  $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$  (lithium sulphate),  $\text{LiCl}$  (lithium chloride) or  $\text{Li}_2\text{SeO}_4 \cdot \text{H}_2\text{O}$  (lithium selenate).
- 5 33. The manufactured mineral water as in claim 2 wherein manganese is provided wholly or partially in a form selected from one or more of the group consisting of  $\text{MnSO}_4 \cdot \text{H}_2\text{O}$  (manganous sulphate)  $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$  (manganous chloride).
34. The manufactured mineral water as in claim 2 wherein molybdenum is provided in  
10 the form of  $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$  (sodium molybdate).
35. The manufactured mineral water as in claim 2 wherein nickel is provided in the form of  $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$  (nickel sulphate).
36. The manufactured mineral water as in claim 2 wherein selenium is provided wholly  
15 or partially in a form selected from one or more of the group consisting of  $\text{Na}_2\text{SeO}_4 \cdot 10\text{H}_2\text{O}$  (sodium selenate),  $\text{K}_2\text{SeO}_4$  (potassium selenate),  $\text{MgSeO}_4$  (magnesium selenate) and  $\text{Na}_2\text{SeO}_3$  (sodium selenite).
37. The manufactured mineral water as in claim 2 wherein tin is provided in the form of  
20 Tin  $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$  (stannous chloride).
38. The manufactured mineral water as in claim 2 wherein vanadium is provided in the form of  $\text{NH}_4\text{VO}_3$  (ammonium vanadate).
- 25 39. The manufactured mineral water as in claim 2 wherein zinc is provided wholly or partially in a form selected from one or more of the group consisting of  $\text{ZnSO}_4 \cdot \text{H}_2\text{O}$  and  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$  (zinc sulphate).

40. The manufactured mineral water as in claim 2 wherein iron is provided in the form of  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  (ferrous sulphate).
41. The manufactured mineral water as in claim 2 wherein the water is a still water and  
5 the pH for a still water is preferably in the range 7.2 to 7.6.
42. The manufactured mineral water as in claim 2 wherein the pH has been adjusted by the addition of carbon dioxide.
- 10 43. A method of making the manufactured mineral water according to claim 2 may be made including the steps of adding the calcium and magnesium of group A to a preparation vessel followed by the step of adjusting the pH by addition of carbon dioxide, and followed by the step of adding the group B elements, the step of adding the group C elements and the step of adding the group D element.
- 15 44. A method of making the manufactured mineral water according to claim 43 including the step of making concentrated preparations of group A elements, group B elements, group C elements and group D element, before adding them to the preparation vessel.
- 20 45. A method of making the manufactured mineral water according to claim 44 wherein the concentrated preparations of group A elements, group B elements and group C elements are stored before use.
46. A method of making the manufactured mineral water according to claim 44 wherein  
25 the concentrated preparations of group A elements, group B elements and group C elements are of a concentration such that between 1 and 10% of each preparation are added to water to make up the final mineral water.
47. Concentrated preparations of minerals for making the manufactured mineral water of  
30 claim 1 including concentrated preparations of group A elements and concentrated



preparations of group B elements such that between 0.1 and 20% of each preparation are added to water to make up the final mineral water.

48. Concentrated preparations of minerals as in claim 47 additionally including a  
5 concentrated preparation of group C elements such that between 0.1 and 20% of each preparation are added to water to make up the final mineral water.

49. A beverage made from the mineral water of claim 2 said beverage additionally having at least one flavouring compound.

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50. A beverage according to claim 49 additionally having a colouring compound.

51. A beverage according to claim 49 wherein the flavouring compound is part of  
complexly flavoured composition selected from the group comprising wines, including red  
15 and white table wines, spirits and liqueurs, teas and juices.

52. A beverage according to claim 49 wherein the mineral water is used in place of other water in the manufacture of beer.

20 53. A beverage according to claim 49 wherein adjustment of pH is made by addition of organic acids.

54. A beverage according to claim 53 wherein the organic acids are selected from the group comprising citric acid or tartaric acid.

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55. A method of diluting a beverage, the method including the step of adding to the beverage a manufactured mineral water of claim 1 or a mineral water concentrate having the elements of the manufactured mineral water at up to five times the concentrations set out in claim 1, to the beverage, at a level to achieve an acceptable taste.

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56. The method of diluting a beverage as in claim 55 wherein the mineral water concentrate is added and wherein the elements are present up to 2.5 times the concentration.

57. The method of diluting a beverage as in claim 55 wherein the beverage is beer.

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58. A method of diluting a beverage, the method including the step of preparing a concentrated preparations of the minerals for making the manufactured mineral water of claim 1, including a concentrated preparation of group A elements, a concentrated preparation of group B elements, a concentrated preparation of group C elements and a  
10 concentrated preparation of the group D element, the concentration being such that between 0.1 and 20% of each preparation may be added to water to make up the final mineral water, the method additionally including the step of adding water and the concentrated preparations in amounts so that together they make up a manufactured mineral water concentrate having the elements of the manufactured mineral water at up to five times the concentrations set out  
15 in claim 1.

59. The method of diluting a beverage as in claim 58 wherein the concentrate and water is added in amounts so that together they make up a manufactured mineral water concentrate having the elements of the manufactured mineral water at up to 2.5 times the concentrations  
20 set out in claim 1.

60. The method of diluting a beverage as in claim 58 wherein the beverage is selected from the group consisting of wines, spirits and liqueurs, beers, teas and juices.

25 61 The method of diluting a beverage as in claim 59 wherein the beverage is beer.